

Work Order ID 59028

Tuesday, May 25, 2010 8:21:52 AM



Page 1

Item ID: D205-634-041

Accept



Setup Start



Revision ID:

Item Name: Replacement Skidtube

Stop



Start Date: 5/25/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 6/10/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *PF*Date: *10-5-25* Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr	Revision Nbr
D2580	Rev D

100

0.00



DOCUMENT CONTROL

DC

0.00

Document Control

Memo

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

N/A HJ

110

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

0.00

CNC Delta 100 Bender

Memo

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

H 10/5/26

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center ID

120

Operation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Skidtubes

Memo

0.00

Skidtubes

1- Deburr ends

2- C'sink holes as per dwg without cutting fluid

3- Prepare tube for welding, remove alodine as required.

4- Scribe batch number insied aft end of tube.

}

4/25/26

130



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

(1) Ø BE 10/05/28

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Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

140



Skidtubes

Operation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

0.00

Memo

0.00

1-Weld step D2576 as per Dwg. D2580 and QSI 004
A/R□□□ Aluminum Rod

M112860

SE 10/05/31

2-Prep per QSI 005 and weld crossbolt spacers D2579 as per Dwg. D2580, QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill
A/R□□□ Aluminum Rod

M112860

SE 10/05/31
SE 10/06/01
SE 10/06/01

3-Grind welds as per Dwg D2580 Grind flush ridge made from bending

4-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64",
adjust stopper not to hit web. Deburr5-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580.
Deburr holes

6-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Deburr

7-Drill pilot holes for Tow ring using DT8091, open to .640" and Deburr

M 10/5/1

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Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center ID

150



QC

Quality Control

Operation
Description

QC10- Inspect visual per QSI004- ground welds

Set Up/
Run Hours

0.00

Draw
Number

Rev.

Plan
Code

Qty

Accept
QtyReject
QtyReject
Number

Stamp

S.10.06.601

160



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

S.10.06.601

(4)

170



HandFinish

Hand Finishing

Pressure Wash per QSI005 4.3

0.00

Memo

0.00

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch and leave fwd cap out of solution.

T-BK 10-6-1

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Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center ID

180



Powdercoat

Powder Coating

Operation
Description

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

M114Z07

Set Up/
Run Hours

0.00

Draw
Number

10106101

Draw
Rev.

0

Plan
Code

1

Accept
Qty

1

Reject
Qty

0

Reject
Number

1063

Insp.
Stamp

190



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

1 BK10-63

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals: Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center ID

200

Operation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

HandFinish

0.00

Hand Finishing

Memo

0.00

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R Sikaflex-291 113435 Sikaflex expire date: 10/11

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex.. Clean excess adhesive

A/R Sikaflex-291 113435 Sikaflex expire date: 10/11

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: 114132

① Bl 10-6-4.

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Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

**Sequence ID/
Work Center ID**

210



QC

Quality Control

**Operation
Description**

QC5- Inspect part completeness to step on W/O

Set Up/
Run Hours

0.00

Draw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

S. Shaboty

(40)

220



Packaging

Packaging

Packaging

0.00

Memo

0.00

Identify and pack for shipping as per PPPD205-634-041

Location: PPDPPP Rev: 59028

10/6/10

230



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

VMF

10-6-16

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Start Date: 5/25/2010

Required Date: 6/10/2010

Comments: IPP Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ

Start Qty: 1.00

IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD

Required Qty: 1.00

IPP Rev. O 06.02.28 Added paperwork EC

IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

D2580-1



Manufactured No

110

Each

7.0000

1

1



1358747 D 10/5/26

205 Skidtube bent detail

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	7	
57028	1	
58384	1	
58385	1	
58618	2	
58619	2	

D2576-3



Manufactured No

140

Each

101.0000

1

1



Step (machining detail)

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	101	
46661	53	
52215	48	

D2579



Manufactured No

140

Each

13.0000

20



Crossbolt Spacer

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG	13	
57052	5	
57348	8	

B 58433

20

BE 10/5/31

W/O:		WORK ORDER CHANGES					
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IPP Rev P 10.02.19 per PAR09-043 EC verified by:DD

IPP Rev. O 06.02.28 Added paperwork EC

IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Required Qty: 1.00

D2855



Manufactured No

200

Each

99.0000

1

1



Cap

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP6	2	
56613	2	
ST026	97	
50513	1	
50770	28	
51539 ✓	15	
53791	53	

1 BL 10-6-4

AN3-5A



Purchased No

200

Each

951.0000

2



Bolt

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST350	951	
105057 ✓	951	

2 BL 10-6-4

AN960JD10L



NAS1149D0332J Purchased

No

200

Each

4,013.000

2



Washer

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST348	4013	
110985 ✓	4013	

2 BL 10-6-4.

ALS7-1032-130



Purchased

No

200

Each

17.0000

50



Insert

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
ST282	17	
113238	17	

50. BL 10-6-4.

ALS4-1032-130

Shop Packet Print

Tuesday, May 25, 2010 8:21:57 AM

Page 2

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IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Required Qty: 1.00

AN3C4A 	Purchased	No	200	Each	1,239.000	50	50
------------	-----------	----	-----	------	-----------	----	--------

BOLT

Location	Loc Qty	Loc Code
ST350	1239	
114103	501	
114108 ✓	300	
114416	12	
114523	426	

50 Bl 10-6-11

AN960C10L 	NAS1149C0332R R	Purchased	No	200	Each	0.0000	50	50
---------------	--------------------	-----------	----	-----	------	--------	----	--------

washer

NAS1149C0332R 114341

D3566-13

D3566-13 	Manufactured	No	200	Each	27.0000	1	1
--------------	--------------	----	-----	------	---------	---	-------

Gasket

Location	Loc Qty	Loc Code
FP	27	
53461 ✓	27	

1 Bl 10-6-4

D3566-5

D3566-5 	Manufactured	No	200	Each	15.0000	1	1
-------------	--------------	----	-----	------	---------	---	-------

Gasket

Location	Loc Qty	Loc Code
FP015	15	
57682 ✓	15	

1 Bl 10-6-4

W/O:		WORK ORDER CHANGES					
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IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Required Qty: 1.00

D3566-1



Manufactured No

200

Each

29.0000

2

2



Gasket

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP015	29	
57715	8	
58182	21	

2 BL 10-6-4

D3564-11



Manufactured No

200

Each

3.0000

1



Wearshoe

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP019 59021	3	
57957	3	

1 BL 10-6-4

D3564-13



Manufactured No

200

Each

21.0000

1



Wearshoe

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP17	21	
57684	7	
57922	14	

1 BL 10-6-4

D3564-9



Manufactured No

200

Each

16.0000

1



Wearshoe

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
-----------------	----------------	-----------------

FP	1	
55334	1	
FP019	15	
57685	1	
57958	14	

1 BL 10-6-4

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IPP Rev. O 06.02.28 Added paperwork EC

IPP Rev:P 07-07-09 SS Wearplates & Gaskets JLM

Required Qty: 1.00

D3564-5



Manufactured No

200

Each

23.0000

1

1



Wearshoe

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FG	1	
34806	1	
FP19	22	
57525	1	
58709 ✓	21	

1 BK 10-6-H.

D2594-3



Manufactured No

200

Each

311.0000

16



O-Ring, 205 Skidtube

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP	311	
55546 ✓	19	
58191 ✓	292	

16 BK 10-6-H.

D2594-1



Manufactured No

200

Each

486.0000

16



Plug, 205 Skidtube

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP	318	
42807 ✓	112	
55002 ✓	71	
57826 ✓	135	
FP14	168	
58434	168	

16 BK 10-6-4

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DART

DESIGN <i>#</i>	DRAWN BY <i>RH</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>#</i>	APPROVED <i>#</i>	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 #

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AEIS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 59028

*BJ 10-5-25***GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241-291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

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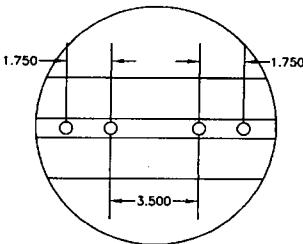
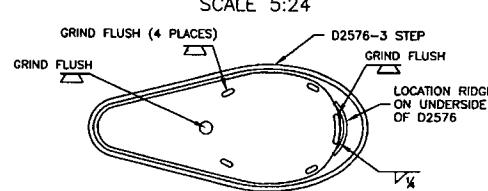
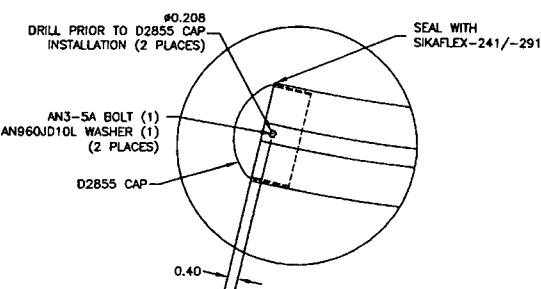
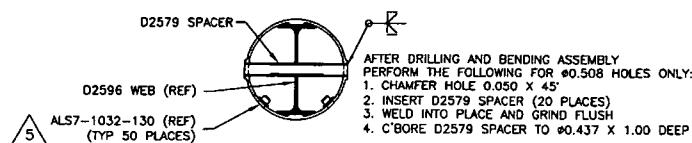
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

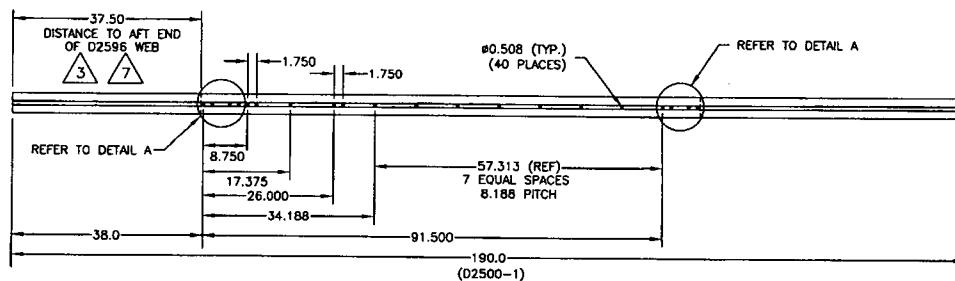
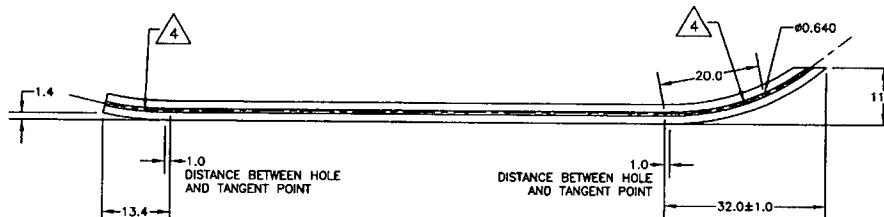
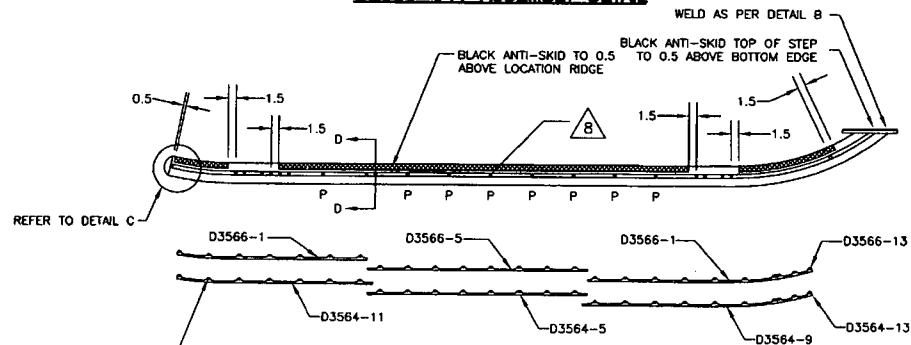
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DETAIL A
SCALE 5:24RELEASED
07-06-28**DETAIL B**
SCALE 5:24RELEASED
07-06-28**DETAIL C**
SCALE 5:24**SECTION D-D**
SCALE 5:24AN3C4A BOLT (1)
AN960C10L WASHER (1)
(50 PLACES)**D2580-041 NOTES**

i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

D2580-1 DRILLING DETAIL**D2580-1 BENDING AND CUTTING DETAIL****D2580-041 ASSEMBLY DETAIL**

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CHECKED	APPROVED		REV. D
		D2580	SHEET 2 OF 3
DATE		TITLE	SCALE

07.02.27

205 SKIDTUBE ASSEMBLY

1:24

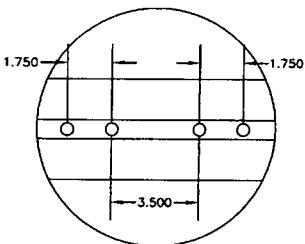
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

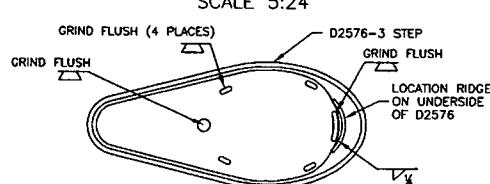
NOTE: Date & initial all entries

DETAIL E
SCALE 5:24

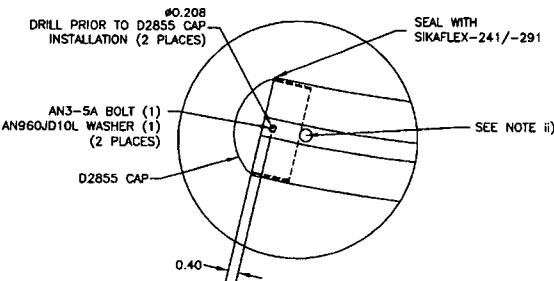


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07-06-28

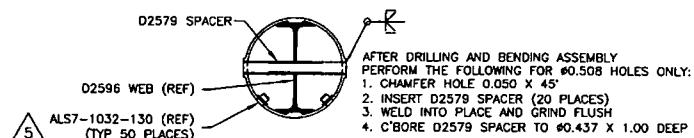
DETAIL F
SCALE 5:24



DETAIL G
SCALE 5:24



SECTION H-H
SCALE 5:24

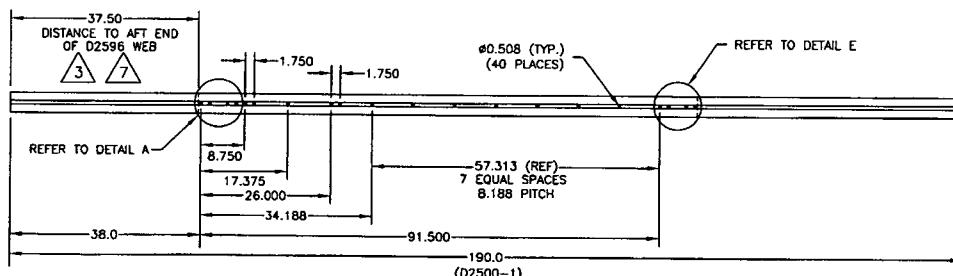


ANSI C4A BOLT (1)
AN960C10L WASHER (1)
(50 PLACES)

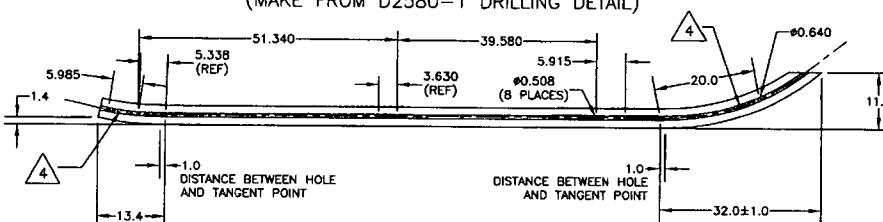
D2580-045 NOTES

- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- ii) IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE
WITH THE SPACER AT THIS LOCATION

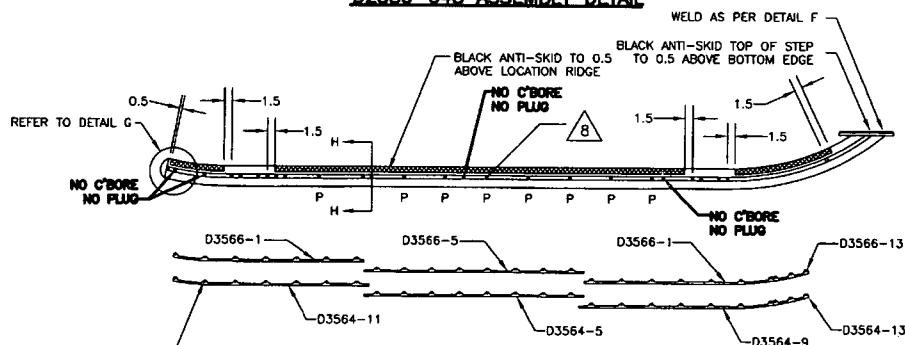
D2580-1 DRILLING DETAIL



D2580-5 BENDING AND CUTTING DETAIL
(MAKE FROM D2580-1 DRILLING DETAIL)



D2580-045 ASSEMBLY DETAIL



WB 59028

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CHECKED	H	APPROVED	H	DRAWING NO.	REV. D
				D2580	SHEET 3 OF 3
DATE	07.02.27	TITLE	205 SKIDTUBE ASSEMBLY	SCALE	1:24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

NO. 232

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 58508
Part number: D205 634 041
Description: 205 tube
Welding Process: Tig[✓] Mig[]
Base materiel: Aluminium
Current: AC[✓] DC[]

TEST REQUIREMENTS AND RESULTS

Visual: pass[✓] fail[]
Penetration: pass[✓] fail[]

UNACCEPTABLE

Cracks: pass[✓] fail[]
Undercut: pass[✓] fail[]
Pin holes: pass[✓] fail[]
Overlap (cold lap) pass[✓] fail[]
Porosity (surface): pass[✓] fail[]
Coloration: pass[✓] fail[]

Qualifier Barclay Elliott Date of Test Coupon 10.05.18

Welder Barclay Elliott Date of Test Coupon 10.05.18

The above named individual is qualified in accordance with AWS D17.1.2001 to weld